Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for determining the position of an object, comprising:

providing at least two electromagnetic (EM) beams, said at least two EM beams being provided from two different EM sources;

dispersing said at least two EM beams, respectively, into a scanning space by frequency;

retro-reflecting at least a portion of said respective dispersed beams off an object positioned within said scanning space;

determining, in response to frequencies associated with said retro-reflected beams, respective angular positions of said object; and

triangulating coordinates of said object using two or more of said respective angular positions;

~~rotating polarization state of said at least two EM beams; and~~

~~rotating polarization state of said retro-reflected beams, such that said at least two EM beams and said retro-reflected beams are treated differently by polarizing beam splitters located in respective paths~~

wherein said at least two EM beams are elliptical shaped EM beams so as to improve tracking range of said retro-reflective object along a direction orthogonal to said scanning space, wherein the elliptical shaped EM beams are EM beams that have an elliptical shaped beam spot.

2. (canceled)

3. (original) The method of claim 1, further comprising:

triangulating spatial coordinates of said object using three or more of said respective

angular positions.

4. (previously presented) The method of claim 1, wherein said at least two EM beams are broadband beams.

5. (previously presented) The method of claim 1, wherein said at least two EM beams are narrowband beams that are tuned or swept across a range of frequencies.

6. (canceled)

7. (currently amended) A position determination system, comprising:

at least two electromagnetic (EM) sources that provide EM beams;

at least two beam dispersion devices that respectively disperse said at least two EM beams into a scanning space by frequency, wherein said system is configured to be responsive to a retro-reflective object positioned within said scanning space such that said retro-reflective object retro-reflects, at least a portion of said respective dispersed beams;

at least two receptors that receive said respective retro-reflected beams and provide signals for determining respective angular positions of said retro-reflective object; and

a processor, in signal communication with said at least two receptors, that determines, in response to frequencies associated with said respective retro-reflective beams, said respective angular positions of said retro-reflective object;

wherein said processor triangulates coordinates of said retro-reflective object using at least two of said respective angular positions; and

~~at least two partially reflective surfaces that direct said respective EM beams from said at least two EM sources to said at least two beam dispersion devices and that pass said respective retro-reflected beams to said at least two receptors~~

wherein said at least two EM sources provide elliptical shaped EM beams so as to improve tracking range of said retro-reflective object along a direction orthogonal to said scanning space, wherein the elliptical shaped EM beams are EM beams that have an elliptical shaped beam spot.

8. (canceled)

9. (canceled)

10. (canceled)

11. (previously presented) The system of claim 7, wherein said processor triangulates spatial coordinates of said retro-reflective object using at least three of said respective angular positions.

12. (previously presented) The system of claim 7, wherein said at least two EM sources include respective narrowband tunable sources for providing said respective EM beams in respective frequencies.

13. (previously presented) The system of claim 12, wherein said respective frequencies are known and wherein:

said at least two receptors include respective photodetectors configured to detect receipt of said respective retro-reflected beams; and

said processor is configured to use said respective known frequencies to determine respective angular positions when receipt of said respective retro-reflected beams is detected.

14. (previously presented) The system of claim 12, wherein:

said at least two receptors include respective wavemeters configured to detect receipt of said respective retro-reflected beams; and

said processor is configured to determine that said respective retro-reflected beams have said respective frequencies and use said respective frequencies to determine respective angular positions when receipt of said respective retro-reflected beams is detected.

15. (previously presented) The system of claim 7, wherein:

said at least two EM sources include respective broadband sources that provide said respective EM beams;

said at least two receptors include respective wavemeters that determine frequencies of said respective retro-reflected beams;

said processor is configured to use said frequencies of said respective retro-reflected beams to determine said respective angular positions when receipt of said respective retro-reflected beams is detected.

16. (previously presented) The system of claim 7, wherein:

said at least two beam dispersion devices are selected from said group of beam dispersion devices consisting of a diffraction grating, a prism, and a holographic element.

17. (canceled)

18. (currently amended) The system of claim 25~~7~~, wherein said at least two partially reflective surfaces include polarized beam splitters, wherein said system further comprises:

at least two polarization state rotators positioned between respective polarized beam splitters and said retro-reflected object, wherein

said polarization state of said respective EM beams causes said respective polarized beam splitters to reflect said respective EM beams, and wherein

said at least two polarization state rotators rotate said polarization state of said respective EM beams and said respective retro-reflected beams such that said polarization state of said respective retro-reflected beams causes said respective polarized beam splitters to pass said respective retro-reflected beams to said respective receptors.

19. (canceled)

20. (canceled)

21. (canceled)

22. (canceled)

23. (previously presented) A position determination system, comprising:

at least two electromagnetic (EM) sources that provide EM beams;

at least two beam dispersion devices that respectively disperse said at least two EM beams into a scanning space by frequency, wherein said system is configured to be responsive to a retro-reflective object positioned within said scanning space such that said retro-reflective object retro-reflects, at least a portion of said respective dispersed beams;

at least two receptors that receive said respective retro-reflected beams and provide signals for determining respective angular positions of said retro-reflective object;

a processor, in signal communication with said at least two receptors, that determines, in response to frequencies associated with said respective retro-reflective beams, said respective angular positions of said retro-reflective object;

wherein said processor triangulates coordinates of said retro-reflective object using at least two of said respective angular positions;

wherein said at least two EM sources provide elliptical shaped EM beams so as to improve tracking range of said retro-reflective object along a direction orthogonal to said scanning space, wherein the elliptical shaped EM beams are EM beams that have an elliptical shaped beam spot.

24. (new) The method of claim 1, further comprising:

rotating polarization state of said at least two EM beams; and

rotating polarization state of said retro-reflected beams, such that said at least two EM beams and said retro-reflected beams are treated differently by polarizing beam splitters located in respective paths.

25. (new) The system of claim 7, further comprising:

at least two partially reflective surfaces that direct said respective EM beams from said at least two EM sources to said at least two beam dispersion devices and that pass said respective retro-reflected beams to said at least two receptors.